

REMARKS

Claims 1 and 16 are amended, Claims 2-5 and 8 remain withdrawn, Claims 10-15 are cancelled and Claims 21-26 have been added. Claims 1, 6, 7, 9 and 16-20, as amended, and new claims 21-26 remain subject to examination in the application. No new matter is added by the amendment to the claims or the new claims.

Applicants amended the title and the preamble of Claim 1 to more accurately describe the claimed invention.

In the Office Action dated December 23, 2003, Paper No. 11, the Examiner rejected Claims 1 and 9 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,293,911 issued to Akeel. The Examiner stated that the Akeel patent shows a voltage block and color change apparatus for a waterborne paint (Column 3, line 41) bell applicator comprising: a paint bell applicator comprising a bell applicator having a paint receptacle 22 and being movable to and from a docking position; a paint canister 12 in the bell applicator connected to the paint receptacle; a paint filling station 19; and at least two paint injectors 20 and 20' attached to the filling station, each of the paint injectors being adapted to be connected to a different color paint, the filling station being actuatable to move each of the paint injectors selectively to the docking position for engagement with the paint receptacle for filling the paint canister with paint (Column 8, lines 30-31).

The Examiner rejected Claims 6 and 7 under 35 U.S.C. § 103(a) as being unpatentable over the Akeel patent. The Examiner admitted that the Akeel patent does not disclose the paint injectors being mounted as recited. The Examiner stated that it has been held that a mere placement or arrangement of the essential working parts of a device involves only routine skill in the art. Regarding Claim 7, the Examiner noted that the paint injectors of Akeel are each mounted for reciprocating movement along an associated interface axis in order to change the paint color as desired.

Claim 1 has been amended to clarify that the paint injectors each are selectively movable to the docking position of the bell applicator along a docking axis. As explained in the specification with respect to each of the embodiments, the injectors are mounted on a movable manifold. When the manifold has moved one of the paint injectors to the docking position, that

injector than can be moved into engagement with the paint receptacle of the bell applicator along an associated interface axis.

The Akeel patent shows a paint drop cluster 19 having different color drops 20, 20'. Each color drop is mounted to a fixed structure by a pair of supports 118 (Col. 7, lines 15-38). Thus, each color drop is fixed at its own docking position. The robot wrist 16 is moved to the location of the selected paint drop 20, 20' to allow the check valve 18 and the actuating cylinder 22 to straddle the paint drop. Then the wrist 16 is moved to engage the check valve 18 with the paint drop (Col. 7, lines 39-44) in order to receive paint when the cylinder 22 is activated.

The Examiner stated that the Akeel patent shows "the filling station being actuatable to move each of the paint injectors selectively to the docking position for engagement with the paint receptacle for filling the paint canister with paint (Column 8, lines 30-31)." The lines referenced by the Examiner read "before the sequence described above is repeated at another color drop 20' of the new desired paint color". The description at lines 30-31 refers to the robot wrist 16 moving from one docking position to another and does not describe any movement of the color drops to a docking position. As stated above, each of the Akeel color drops is located at its associated docking position and does not move from that location. The only movable part of the color drop is the check valve poppet 100 inside the casing 92.

The Akeel patent does not show or suggest the invention defined by amended Claim 1 wherein paint injectors are selectively moved to a docking position for the bell applicator along a docking axis. Each of the Akeel color drops is fixed at its associated docking position and the wrist with the check valve is moved among the different docking positions in order to change paint color. This is exactly the opposite of the operation of the apparatus defined by amended Claim 1. The electrostatic painting apparatus according to the present invention has significant advantages over the prior art.

One advantage is that in the prior art devices, the bell application first moved to a washing station and then moved to the fixed location of the selected injector. The apparatus according to the present invention includes a shroud washer (Claims 3 and 4) provided at the docking position that cleans the bell applicator while the selected injector is moving to the docking position thereby saving considerable time in the canister filling operation. Another advantage is that the robot need only be programmed to move the bell applicator to the common

docking position whereas the Akeel robot must be programmed to move to a plurality of docking positions determined by the number of color drops. A further advantage is that since the painting path programs are independent of the selected paint color, the prior art robot had to return from each color drop to a "home" position before starting the painting path. The claimed apparatus and method saves the "return time" since it already is located at the "home" common docking position. The saved time can be used for painting thereby decreasing the total cycle time. Yet another advantage is that the single docking interface used with multiple color manifolds, as shown in Fig. 19 for example, is considerably less expensive than a docking interface for each color as shown in the Akeel patent.

Applicants believe that amended Claim 1 is generic to all of the species identified by the Examiner. For example, Claim 2 depends from Claim 1 and defines the "Species 1 and 2" as shown in Figs. 2 and 3 respectively. The rotatable annular manifold shown in Figs. 2 and 3 has a generally horizontal circular "docking axis" as indicated by the arrows in Figs. 1 and 3 representing motion about a vertical axis. Claim 5 depends from Claim 1 and defines the "Species 3" as shown in Fig. 4. The linear manifold shown in Fig. 4 has a generally horizontal linear "docking axis" as indicated by the arrow 16. Claim 8 depends from Claim 1 and defines the "Species 4" as shown in Fig. 11. The circular manifold shown in Fig. 11 has a generally vertical linear "docking axis" as indicated by the arrow 62. Therefore, Applicants request that Claims 2-5 and 8 be reinstated.

Applicants appreciate the Examiner's statement of allowance for Claims 16-20. Applicants amended Claim 16 to correct a minor typographical error.

Applicants rewrote cancelled Claims 10-15 as new Claims 21-26 respectively dependent from Claim 1.

Applicants added method Claims 27 and 28 that are similar in subject matter to Claim 1.

The Examiner stated that the prior art made of record and not relied upon is considered pertinent to Applicants' disclosure. The Examiner cited: the U.S. Patent No. 4,299,500 issued to Bassetti; and the U.S. Patent No. 5,676,756 issued to Murate et al. Applicants have reviewed these references and found them to be no more pertinent than prior art relied upon by the Examiner in his rejections.

In view of the amendments to the claims and the above arguments, Applicants believe that the claims of record now define patentable subject matter over the art of record. Accordingly, an early Notice of Allowance is respectfully requested.